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LORD LINDSAY, M.P., F.R.S., President, in the Chair.

William Charles Armstrong, Esq., Wanderers' Club, Pall Mall, S.W.;

Prof. J. J. Åstrand, Observatory, Bergen, Norway;

Thomas W. Bithrey, Esq., 45 Stepney Green, E.;

The Rev. James Law Challis, M.A., Vicarage, Stone, near Aylesbury;

George Howard Darwin, Esq., M.A., Trinity College, Cambridge;

Henry T. Vivian, Esq., 34 Wellington Road, Camberwell, S.E.; and

Robert Rumsey Webb, Esq., M.A., St. John's College, Cambridge;

were balloted for and duly elected Fellows of the Society.

On the Adjustment to Position of an Equatoreal Telescope. By the Rev. James Pearson, M.A., F.R.A.S.

Having recently had occasion to set up for the first time an Equatoreal Telescope, I adopted a method which I have not seen described elsewhere, and which has proved very successful. It is independent alike of meridian observations and spirit-levels, and for distinction's sake I may term it the "method of co-ordinates." An upright pyramidal stone of great height compared with the circumference of its base having been firmly embedded in the ground, with its principal faces north and south

approximately, the mounting of the Equatoreal was firmly attached to it by means of bolts, screws, and clamps.

The mounting, which, as well as the telescope, was made by Cooke & Sons, of York, consists of a polar axis carrying a single hour-circle, and a cradle-piece so constructed that the telescope may be separately affixed or withdrawn at pleasure. The cradle-piece forms an appendage to the declination-axis, at right angles to the former, which carries the declination-circle.

The telescope, then, being placed on its mounting, both were approximately set in position, *i.e.* the polar axis in the direction of the pole and the axis of the telescope with its plane of motion coincident with the plane of the meridian. This being effected, the telescope was pointed to a star, and then the mounting was moved about on its bearings by means of foot-screws, and round a vertical screw, forming an axis, until the declination-circle indicated the true North Polar Distance of the star when in the centre of the field of view. A marine chronometer, tested to Greenwich Mean Time by means of a Dipleidoscope, was employed to determine the Right Ascension of the meridian of the place at a given instant, and thence, by subtraction of the star's Right Ascension, its Hour-angle was found for the same instant. For convenience, the instant selected was the commencement of some hour on a common watch, its error being compared with the standard chronometer, and thus the Hour-angle of the star at any following instant was obtained at a glance by adding the minutes and seconds elapsed on the watch since the commencement of the hour nearest to it.

This done, two coordinates were obtainable for the same instant, viz. the true North Polar Distance of the star, and its true Hour-angle; and thus, by moving once more the mounting on its bearings, the hour-circle was made to indicate the true Hour-angle, and then the position was made permanent by the screws.

The adjustment was found so far satisfactory that planets and stars could be made visible in the day time by its means, which is a competent test of its accuracy.

Note on the Difference of Variation of Gravity at Revel and St. Petersburg; and on Grischow's Pendulum Observations at other Stations. By Major J. Herschel, R.E., F.R.S.

The difference to which I wish to draw attention is that exhibited on comparing the observations at the two stations named, by Grischow* in 1757, and by Sawitsch in 1865.

As such a comparison will seem at first sight derogatory to the modern observation, I will give my reasons for thinking that the more ancient are not devoid of reliance.

* *St. Petersb. Acad. Sci. Novi Comm.* vii., pp. 447–451.